To: Grimm, Paul[pgrimm@blm.gov]
From: Betenson, Matthew
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Hi Paul,
Thanks for your help with this!

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Matt Betenson
Associate Monument Manager

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THE SECRETARY OF THE INTERIOR

WASHINGTON

NOV 6 1996

Memorandum

To: Director, Bureau of Land Management

From: Secretary

Subject: Management of the Grand Staircase - Escalante National Monument

On September 18, 1996, the President created by Proclamation the Grand Staircase - Escalante National Monument in Utah. This is the first National Monument in history for which management responsibility has been given to the Bureau of Land Management (BLM), offering BLM a highly visible opportunity to demonstrate its stewardship. The purposes of this memorandum are: (a) to direct that you issue interim guidance for managing the Monument during the next three years; and to direct you to prepare the management plan for the Monument for my adoption by the end of that period;

The President's Proclamation directs management of the Monument pursuant to applicable legal authorities, including the Federal Land Policy and Management Act. (FLPMA) and the National Environmental Policy Act (NEPA). Further, I want to make certain that we work very closely with the State of Utah as our efforts proceed. While stewardship of the Grand Staircase - Escalante National Monument is the responsibility of this Department, I believe an effective working relationship with the State is crucial to our development of an effective management plan. The State possesses expertise in numerous management disciplines, and its capabilities will complement our own.

INTERIM MANAGEMENT DIRECTION

The public should have more-expeditious information concerning the management of specific activities during the three year interim period. Accordingly, I ask that you issue appropriate guidance to field managers as soon as possible. Field management should be fully conversant with that guidance and initiate efforts to provide information to the public as necessary.

The President's Proclamation cited the Monument's unique geologic, paleontological, ecological, biological and historical values. It also stated that valid existing rights (YER) must be recognized, withdrew Federal lands and interests in lands within the Monument from entry, location, selection, sale, leasing, or other disposition (except exchange) under the public land laws including, but not limited to, the mineral leasing and mining laws, and stated that existing grazing uses shall continue to be governed by applicable laws and regulations other than the Proclamation. As a general principle,

actions that are not precluded by the Proclamation and which do not conflict with the established purposes of the Monument may continue..

DEVELOPING THE MON1.Th.1ENT MANAGEME'N"f PLA,\l

The President's Proclamation directed me to prepare, within three years, a management plan for the Monument and any necessary regulations. . You sho,ul;t take the lead in prepa ring the plan and proposing it for my adoption. In preparing the plan, you must make c uain that it reflects the purp oses for which the Monument was stablished.

In order to assure an effective planning effort, you should develop a detailed inventory of significant resources within the Monument's boundaries which have been ipendfied thus far through available sources. The inventory shoul,9 have a usable format and be easy to update as new infonnation becomes available. Attached is a bibliography of mo!]ument resources that was completed, in connection ith the Proclamation. Although there is considerab understanc;iing the Monument's attributes, rpuch *mote* work is needed *io* identify, assess, interpret and protect the.m in an i tegrated manner:

In addition to the State; local and Tribal'governments, the private sector, the; public and other; Federal agencies have in erests and insights as to managing the Monument's resources .and integrating the Monument with local community development. I expect you to be energetic and iMovative in working with these entities. Many, o dels for .invotving our neighbors have been developed and implemented. Useful 1.esscns can draw. from these models throughout the. **West** by both be n government and non-government entiti es.·'

The m agement of the Grand Staircase.: Escalante National Monum ept is one of the Department's most visible and.- important priorities:. Your wor:k will ha'\:e a profound impact on the public's assessment of the Bureau and of Federal land management in general. I know that the challenges ,o f managing the MQnument and preparing its management plan are significant and encompass a very broad variety of scientific, historical, and economic consiijerations. The Bureau will have my full support and encourag ment as your efforts procee .

Attachment

11

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Grand Staircase Escalante National Monument
List of Historic and Scientific objectsof Interest

Objects of Geologic Interest

Description: Perennial streams enter entrenched canyons in white **Navajo** and deep red Windgate Sandstone. Deer Creek, Steep Creek, and The Gulch have perennial flows of clear cold water. The Gulch leads up into the spectacular Circle Cliffs where remarkable specimens of petrified wood (60 ft. logs) exist in the Morrison and Chinle formations.

Location: Escalante Steep Creek WSA

Source: Utah BLM Statewide Final Wilgerness EIS, 1990

Description: White Canyon cuts through the Kaibab Limestone to the Coconino Sandstone, the oldest stratum in the Upper Escalante drainage.

Location: Escalante Studh0rse **Peaks** unit

Source: Davidson, E.S., Geology of the Circ;:le Cliffs **Area,** Garfield and Kane Counties, Utah, 1967. 10

Description: Big Spencer Flat Road and the V Road, is si.te of thunderball iron concretions known as Moqui marbles. These oddities weather out of tlle Navaho

sandstone and are a popular recreati-n feature.

Location: North Escalante Canyons WSA

Source: Sargent, K.A., Environmental Geologie Studies of the Ealpa tbs Coal Basin, utah. p. 16, and Utah BLM Statewide Final Wilderness EIS, 1990

Description: The Waterpocket Fold tops out at Deer P.oine (T,243 feet). **Host** of the Wacerpocket Fol.d is in the Capitol. Reef NationaI Park **where** it **is a** major

landmark.

:o:a:i n: :5:a: t : :o:t_M s t_ :f

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Source: Uth_ WildernessCoalition. Wi l de;:nes s at the gdge: p. 189, and Davi'dson. E.s., Geology of the CircleCliffs Area, and Ka-ne c.o.u nties, Garfield !ltah, 1967. p. 61

I)escription: The inner gorges of the upper Moody canyons **cu** into the relat! ly harder Kaibab Idmestone and Coconino Sandstone (ol est e:q\?osed layer in this r'eg 1on).

o a i n; al t; .., olt M;si

Source Utah Wilderness Coalition. Wildemes:s. at the Edge. p. 189

Description: Dry Vall ey Creek canyon. *I.*, ,aterfe.ll. blocks **el . ance** to Dry

Valley Creek Canyon and consequently, the amy on J:Pfflains in it:s natural condition•. A perennial stream cuts through al.lllvial benches. ·t t is relict and probably possesses important scientific values

Location: Mud Springs Canyon WSA

source: Utah BLM statewide final wilderness Ers. 1.990

Description: The East Kaibab Monocl.ine or the Cockscomb is unique·as a Colorado

Plateau structure. Its alignment with the ?aunsaugant. Seevier, and Hurricane faults s'uggest that it too could be a fault at depth. It extends from the Colorado River north to Canaan Peak and is a major landmark.

Location: Kaiparowits Plateau The Cocksco:r..b

WSA Source: Utah 9LM Stat ewide Final Wilderness

E:!S. 1990

Description: The Blues a Cretaceous shale badlands, richly colored and contrasting with adjacent pink sandstone cliffs that forms a significant part of the vista for visitors to Bryce Canyon National Park; The Kaiparowits formation is weli expo'sed here represents an accumulation of exceedingly rapid proportions and an immature sedimentary region which is not well displayed in any other formation in the Colorado Plateau.

Location: The Blues WSA (near ryce Canyon)

Source: , Welch, S.L. . Rigby, J. . Hamblin, W.K., A Survey of Natural Landma rk Areas of; the Nor,th Portion of the Colorado Plateau, 1980. p. 248

Descriptioni Fiftymile Mountain is a complex of deep canyons; upwarps. monoc!ines, hogbacks and a spectacular 42 mile long Straight Cliffs wall, topping a thousand foot ,high cliffline of the Surranerville. Morrison and Dakota formations. This complex marks the edge of the Kaiparowits Plateau.

ocat on: Kaiparowits Plateau Fiftymile Mow::tain-WSA

Source: Utah SLM Statewid F'inal Wilderness E!S, 1990

Description: cient coal fires of"Right Hand Coli et Canyon have left surface remains in the ·form ol: clinkers and deep red ash. These remains dominate the visual_ character of the drainage.

Location: Carcass Canyon WSA

Source:, Utah 9LM Statewide Final Wilderness E!:S, 199 0

Description: Arch. Span of 40 feet located in Calf canyon. and is visible from the Alvey Wash road.

:o :a = i- n :a:c s (ay n_w:A

Source: Utah BLM Statew·iae Fina1 Wilderness EIS. **1990**

Description: Burning Hills naturally occurring undergroun ·coaL fire S' have turned steep-and-rugge d exposed hilltops a distinctive red.

Location: Burning Hills WSA

Source:. Utah, SLM Statewide Final Wilderness EIS, 19 90

Description: Devils Garden oddly shaped arches (lncluding Metate Arch) and rock formations in the hi·lls at ·the foot of the cliffs marking the Ka.iparowits **Plateau.**

Location: **Carcass** Canyon WSA **(east of WSA)**
Source: Utah BLM Statewide Final Wilderness EIS, **1990**

Description: This area possesses exceptional scenic values and contains a

portion of the Cockscomo, a prominent southern Utah geologic feature. the Cockscomb forms 2 parallel knife edged ridges with a bisection V shaped rqugh. Flatirons. small monoliths, and other colorful formations are present on the west ridge. These major features of south central Utah cover over 4,000 **acres.**

Location: Mud Spring WSA.

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: An int:eresting fold in Henrieville Creek along the northwest boundary of the WSA is of geologic interest and a sightseeing attraction.

Location: Mud Spring WSA

Source: Utah BLM Statewide Final Wilderness EIS. 1990

Oescription; Window Wind Arc:h above the middle trail has scenic value because of its location on the very edge of the Straight Cliffs. The Straight Cliffs escarpment is. major landmark in south central Utah and an important scenic feature within view from the Hole in the Rock road. Woolsey Arch is located in

Rock Creek Basin, an area of colorful Navaho sandstone and high cliffs.

Location: Fifty Mile, Mountain WSA

Source: Utah BLM Statewide Final Wilderness EIS. 1990

Description: Unique bec·ause it consists of 2 prominent southern Utah physiographic systems. It includes the eastern most extension of. the White Cli.ffs' component of the famous ascending staircase. cliff and terrace physiography, the Vermillion. White. and Pink Cliffs; and east of the **Paria** river, the dividing point is the landscap_ rep,:esentative of th Glen canyon physiography of sculptured, dissected, and exposed, Navaho sandstone. **The area** where these merge bet.ween Deer Range and Rock Springs Bench is a highly scenic complex·and colorful landscape

Location: **Paria-liackberry WSA**

Source: Utah BLM Statewide Final Wilderness EIS. 1990

Description: ' The Vermillion Cliffs. with its associated Wingate Sand.$tone cliffs. c.olorful Chinle badlands, and canyons with there multiple t:olors and th e' intensity of coloration contribute tc:> high sc nic quality. Included this landscape are·Hackberry Canyon., Paria River Valley, Hogeye Canyon, the Pilot Ridge Starlight Canyon 1<'.irbys Point rea and Eight Mil.e **Pass**.

Location: Paria Hackberry WSA.

Source: Utah BLM Statewide Final Wildern ss EIS, 1990

Description: An area of high scenic value include the breaks of the aush Beds anci the west wall of Cottonwood Canyon, upper tril:,utaries to Hackbe Canyo . Death Valley Draw, and the exceptional Navajo Sandstone domes .and fin,fo tions cm either side of lower Hackberry Canyon.

Location: Paria Hackberry WSA

Sou,rce:Utah BLMStatewide Final Wilderness EIS, 1990

Description: ·FourONA's designated to preserve •unique scenic values and natural wonders•. North Escalante C yon (5,800 acres), The Gulch (3,430), Escalante Canyons (480, acr es), Phipps Death Hollow (12 more outsi,deWSA)

Location: North Escalante Cahyons WSA

Source: Utah BLM 'Statewide Final Wilderness EIS, 1990

Location: North Escalante Canyons/The Gulch ISA

Desc: iption: This area is geologically complex and has some of the most outstanding canyon scenery in the country." Harris Wash a canyonof the classic Escalante River drainage canyon form with many entrenched meanders in the Navajo

Sandstone.

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Desc!:"iption: A unique feature of the Burning Hills is the red coloration in the landscape is the result of geological changes attr1:,uted the naturally occurring c;:oal fires. The coloration creates a highly scenic area.

Location: Burning Hills WSA

Source: Utah 9LM Statewide Final Wilderness ::;;;s. 1990

Desc: iption: The White Cliffs are high whit.e "or yellow cliffs of .?:lava:fo Sandstone., *Vary* in }:leight from 600' at Deer Springs Point. bench to 1,200' t Deer Springs Point. and the Sheep Creek Bul,l Valley Gorge Paria River conpuence. The cliffs consist.ently reach a 1000' in heigh: and the cliffline is interrupted by 8 canyons.

Locacion: Paria Hackberry WSA

source: Utah BLM Statewide Final Wilderness EIS, 1990

D sc::'iption: This area .cont.ains twenty four undeveloped springs. Ten are. locaced in u.pper Paria. 6 in hackberry, 5 on theeastern bo rderof Cottonwood Creek. and J on west. boundary. There are: also 6 developed springs. These are significant features in this arid environment.

Locacion: Paria Hackberry WSA

Source: Utah 9LM Statewide Final Wilderness ::is, 1990

Description: Phipps Death Hollow ONA (12/23,'.,"70) contains 34,2-'88 acres managed to preserve scenic values and natural wonders.

Location: Phipps Death Hollow ISA

Source: Utah BLM Statewide Final Wilderness .E!S, 1990

Dscription: Arches. Peek a boo Rock, Wahweap Window, Jacob Hamblin Arch, Starlight Arch, Cobra Arch, Sam Pollack Arch, Woolsey Arc:h, and several more unnamed arches and natural bridges.

Location: Kaiparowits Plateau and adjacent areas

Source: sargen,t. K.A., Environmental lGeologicStudies of the Kaiparowi s Coal **Basin**. Utah.

Description: Sand calcite crystals from t::he Morrison Formation. **These** crystals are the first reported o.ccurrencefroI_t\rocks of Jurassic age and only reported sand crystals in southern Utah.

Location: Kaiparowits Plateau

Source: Sargent, **K.A.**, Environmental Geologic Studies of the Kaiparowits Coal-Basin, Utah. p. 18

Description: Circle Cliffs iri the northeast portion of WSA features intensively colored red, orange, d purple Chinle mounds ar_id ledges at the base of Wingate Sandstone cliffs. Vertically jointed cliffs banded with red, yellow, and white colors and bench tops and upper cliff faces possess innumerable orange-red Kayenta Sandstone l<nobs. One of most spectacular and distinctive landscapes on

the Colorado Plateay.
Location: Steep Creek WSA

Source: Utah BLM Statewide Final Wilderness EIS, 1990 .

Description: Area includes Escalante Natural Bridge (130' high, 100 ' **span)** and 4 other natural bridges and arches.

Location: Phipps:..Death Hollow WSA

Source: ' Utah BLM Statewide Final Wild erness EIS, 1990

Description: The Gulch is a major geologic feature. Deeply entrenched very sheer i;.ed straight line Wingate Sandstone walls. High ridges and slickrock peaks. Ridges drop fairly abruptly to canyons below.

Location: Steep Creek WSA-

Source: Utah BLM .S tatewide Final Wilderness EIS, 1990

Description: La.manite Natural_ Bridge. Actually a i ge arch with good symmetry and form. Located in an impressive setting in a de¢p **side** canyon to The Gulch.

Location: Steep Creek WSA

Source: Utah BLM Statewide Final Wilderness EIS. 1990

Descripti,on: Petrif,ied wood. Upper Guich-Circle Cliffs contains large, - unbroken logs of petrified wood (NEA 2,213 acres).. Maximum log length **36'.** The scenic

values of these logs is enhanced by their col_orful surrounding$.

Location: Steep Creek WSA

Source: Utah Statewide Wiiderness EIS, 1990 W FEIS 3B 19,' arid Sargent, **K.A.**, Environmental Geologic Studies of the Kaiparowits Coal...Basin, .Utah. p l3.

Description: Outstanding scenic values include the .upper portion of **Paradise** Canyon where_sandstone in the Wahweap Fonnation oµtcro_ps as colorful walls and cliffs. Ponderosa pine growing in the sandstone eruumc;:e the scenic **values.** 'l'Wo

'Sandstone monoliths or fins above Alvey Wash are prominent geological fQatures.
Death Ridge WSA

Location

source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: The area contain.s a unique canyon and bench.system. The entire ISA contains outstanding scenery. Examples include the area east of Horse·canyon. Four canyons have isolated 10 benches of varying size Many bench tops have

Lise of Historic and Scientific Objects of Incerest

intricate pattern of innumerable e orange re, d Kayenta Sandstone knobs. Wolverine Canyon and Death Hollow have extremely narrow and convoluted sections. Another feature. Harris Wash a canyon of the classic Escalante River drainage canyon form with many entrenched meanders in the Navajo Sandstone.

Location: North . Escalante Canyons/The Gulch ISA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Mollie's Nipple, an erosional remnant is a major landmark in the area.

Location: Kaiparowits Plateau.

Source: UtahBLM Statewide Final Wilderness EIS, 1990

Description: Natural Arches. Sam Pollock Arch, located at the head of a tributar.y drainage of Hackberry Canyon, and Starlight Arch located west of No Man's Mesa.

Location: Paria Hackberry WSA

Source Utah 3LM Statewide Final Wilderness E.IS, 1990

Desc iption: Area of diverse geology represented by spectacular deep canyons. ' The Escalante River canyon is 1100 feet deep. The canyon wall.s are rough and broken and the canyen is narrow and it meanders. white to golden :sandstone has been eroded into expanses of ' slickrock. Death Hollo,w Canyon is 1;000' . feet deep and meandering. The extensive upper basin through which Mamie Creek flows is a extremely dissected area of c anyons, tanks, .other formations. Red layers of Carmel Formation cap high cas and ledges of the exposed Ka yenta Formation.

Pu
re

Location: Phipps Death Hollow ISA

Source: Utah ELM Statewide Final Wilderness EIS, 1990

Description: Petrified wood deposits just west of the Old Paria Townsite and in Hack.berry Canyon. Both are in the Chinle formation.

Location: Pa i'a Ha-ck-be ry WSA

ource: Utah 'BLM Statewide Final Wilderness EIS, 1990

Oescriptio : Kll the topogr phic features of tbe Kaiparowits regi n **have** been developed in sedimenta:r:y rocks. The Kaipard'!fts Plateau is a slightly tilted sedimentary mass that extends as a na,rrow me'sa from the Hig h Plateaus to Glen Canyon 70 miles distant. Its culminating po'tlt, Canaan Peak is an a the outlier Table Cliff Plateau; the Paria Plateau is a huge blick of sandstone, the Waterpocket monicline is a ridge. of folded rock intricately dissected and flankE:d "by hogbacks, and the broken comb" in the vicinity of **Paria** is .the edge of sands .one beds uptoruned in 'the Ea.st Kaibab fold. The Circie Cliffs are inward facing walls of sandstone that rim an oval depression. These prominent features are but large scale examples of the mesas, buttes, and ridges tha t characterize the landscape of southern Utan.

Location: Kaparowits Plateau region

source: Gregory, H.E. and Moore, R. C. The Kaiparowits Region; A Geographic and Geologic Reconnaissance of Parst of Utah and Arizona. 1931.

Description: **Paria River** from Colorado River to its source, identified **by NPS as**

possessing values that may be of national significance, potential to be included in the National Wild and Scenic River System.,

Location: Paria hackberry WSA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Escalante River from Lake Powell to its source , a section of **14.9** miles, was desigrtated as' for study as a candidpte Wild and Scenic River by th,e Secretary of the !nterio on 10/11/70.

Locac on: Phipps Death Hollow ISA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Lower Caif Creek **Falis**. Calf Creek Canyon *is* characterized by red alcoved walls, 2'waterfalls, and extensive expanses of white slickrock. Lower Calf Creek Falls drops 126' and Upper Calf Creek' sdrop **is 86'.** High educational

values associated with interpretation of these **areas.**

Location: Phipps Death Hc>llow ISA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Descr ption: The area contains 40 ml.l s of' perennial streams, a significant feature in thi.s arj.d environment.

Location: Phipps Death Hol,i'ow· **ISA**

Source: Utah BLM Statewide Final Wilderness EIS, 1990

, Objectsof Paleontologic Interest, August, 19 6

Description: Fossil assemblage photographs. Typical mollusks from Tropic Shale, south of Escalante include straight cone edphalopods, iumnonites, gastropods, and

pelecypods and Cretaceous sharks teeth from the ,Straight Cliffs Formation.

Location: Kaiparowits Plateau

, Source: Sargent, . **K.A.**, Environmental Geologic Studies of the Kaiparowits **Coa - Basin.** Utah. **pp 1 4 1 5**

Description: Gray Cliffs/Pink Cliffs This sequence of rc,cks may·cc;,ritain on of "tbe best and "most continuous. records of Late Cretaceous terr strial life in the

world. Formation has yielded early lizards, dinosaurs, crococ:lillians - mammals, turtles, mollusks.

Location: Kaiparowits - The Blues WS A

Source BLM, Escalante/Kanab RMP Gran<! Staircase Ecosystem J\nalysis : 19g4

Description: Fossils deemed by the Museum of Northern izona in a l91(i study to be of major importance. They are fowid in the Cretaceous **Wahweap** Foria.ation outcrops include abundant fragments of turtle shells and dirtosaurs. af;S well as several crocodile teeth. There is an excellent chance that fossils will be found

ma m m al

Location: Kaiparowits Plateau Nipple Benc1l unit'

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Source: BLM, Kaiparowits power project environmental impfot stat ent, **1976**

Desc::: ip ::.on: The Straight Cliffs Formation is limited to the southern Utah area. It com:.ains primitive mammals including one of the potentially oldest:. marsupial fossils identified.

Locat:.ior.: Kaiparowits Plateau

Source:, SLM, Warm Springs Project Preliminary Draft EIS, 1996

Desc::: ipc.:.on: Invertebrate and vertebrate specimens found Straight Cliffs, Tropic Shale. and Dakota Formations. 13 collection sites recorded {gastropods, cephalopods in upper Cretaceous Formations, vertebrate in Dakota and Tropic
Sh lesl. Likely to occur along entire length of the Straight Cliffs

Location! Carcass Canyon WSA

Source: Utah BLM Statewide Final Wilderness EIS. 1990

Descript:.ip_n: The Kaiparowits is of interest in understanding the evolution of mammals and other terrestrial vertebrates. Very little is known of Cretaceous mammals prior to the latest part of that period. The mid Cretaceous lian twiligh: zone, is spanned by the fossiliferous, terrestrial roe; units of the Kaiparowits region.' They contain unique evidence bearing on the early diversific; tion of important mammalian groups of the Late Cretaceous. The thickness. continuity, and broad. temporal distribution of the Kaiparowits sequ.e ce provides the opportunity to document changes in tel:."restrial vertebrate as_sembl,ages over a wi.de span of Late Cretaceous ti%ne.

.Locatidn: Kaiparowits Plateau

Source:. Eaton, Jeffrey G, and Cifelli, Richai:d L Preliminary r.eport on Late Cretaceous mammals o the Kaipa owits Plateau, southern Utah, **1988**

Description: E.xtr ely .si gnif.ical:lt fossils i11clu,di:g marine ,clJ'ld orac;kish water mollusks. ' turtles, crocodillians, lizards, dinosaurs, fishes,· and mammals have
, been recovered frbm the Dakqta formation, Tx:opic:: shale, Straight Cliffs Formatior. (Tibb t Canyon, Smc;>lcy Hollow, and Johri Henry membe r:s) , c1U1d Wahweap fc,rination in the area around the proposed Andelex mine and some localities lie dii;:e.ctly along
the pr posed.haul. rout s.· Th if.s7quence o f r9 ks(including the ov rlyingWahweap and .Ka1.parow ts formations) contain perhaps the best and most-,continuousre e>rd of-La:ce, C ret aceous-terrestrial life in the world

Loca,tion: Kaiparowits Plateau
.Source:.Eatdn, Jeffrey G., Personal correspondence to Mr. **Mike** Noel, **BLM**, ·**1991**

Objects of Prehistoric Interest

Description: Sixty sites have been recorded and the potential for additional sites is exceptionally high. Sites discovered to date include lithic scatters, rockshelters (some w/storage cists and rock art), 1 pithouse village site and 1 structure (probably of Anasazi origin). Some of the rock art and rock shelter and 1 campsite are potentially eligible for nomination to the NRHP.

Location: North Escalante Canyons/The Gulch ISA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Friendship Cove Pictograph site nominated to **NRHP. This** site consists of a set of large Fremont style pictographs painted on **the face** of a large sand-to cliff.

Location: Phipps Death Hollow ISA, eastern part

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Forty four sites of diverse types have been recorded in the area. rock art (petroglyph and pictographs sites (2 from Fremont culture), 1 Pit house village site, lithic scatters of Paiute and Anasazi and 6 rockshelters have been discovered. Potential for more sites is good.

Location: Phipps Death Hollow ISA

Source: Utah BLM Statewide Final Wilderness 1990 EIS.

Description: Situated at the intersection of three major prehistoric cultures the Plateau has long been a magnet for archeological study. .. rt has been recognized that the Kaipa owits Plateau might contain important clues that would aid in answering questions in the archeology of the Southwest."

Location: Kaiparowits Plateau

Source: Utah Wilderness Coalition. Wilderness at the Edge. p. 147 and Lister, Florence C., Kaiparowits Plateau nd Glen Canyon prehistory, an int rpretation based on ceramics, 1964

Description: Fiftymile Mountain Archeological District contlins more than 400 sites incl udin Anasazi habitations and granaries Important scientific value. 'Some of the mest significant cultural" resources in the Four Corners area.

Archaeological: Pistrict {4V,325 acre) has been nominated to NRHP. Majority f sites are masonry structures (of 1 10 rooms). Most are of Virgin AnasazJ, origin but include sites attributed to, Fremont, Hopi, and Paiute. **Navaho are also** expected of occupying the area. 4,000 total sites may be located in WSA.

Ldcation: Fiftymile Mountairi WSA

Source: UtahBLM st tewide Final Wilderness EIS. 1.990

Description: **Sixty-five sites have** been recorded. **They include;** lithic and ceramic scatters, masonry structures (granaries and, storage cists), **one** rock shelter. Masonry and some lithic/ceramic associated with Virgin **Anasazi/Virgin-** Kayenta Anasazi. Two are Pueblo II: III time period. Some sites are associated with Paiute age or Archaic age peoples. At least 8 sites in this **area are** eligible for nomination to the P.

Location: Wahweap WSA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: High concentration of prehistoric sites. Although surveys are incomplete for the Warm Creek unit more that 600 sites have been found ranging from lithic scatters and campsit s to rockshelters.

Location: Kaiparowits Plateau/Warm Creek unit.

Source: BLM, Kaiparowits power project environmental impact statement, 1976

Description: Part of a larger area extensively used by the Kayenta Anasazi and later the Southern Paiuce Indians. Site densities expected to be moderate to high.

Location: Kaiparowits Plateau/Squaw Canyon unit

Source: ERT. 1980, Kaiparowits coal development and transportation study, final report

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Description: Prehistoric site densities are high on top of Nipple Bench. Sites represent Fremont, Virgin Anasazi and Kayenta Anasozi. The sites represent complex associations of features and rtifacts and indicate permanent or extensive camps in rock shelters. .)

Locat:.:.on: Kaiparowits Placeau/ijipple Bench unit

'Source: Fish, Paul, Preliminary Report Kaiparowits Power Project

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Description: Six sites have been recorded. One is Pueblo II **Anasazi** occupatit:?_n site., with others unidentified.

Location: Burning Hills WSA

Source: Utah BLM Statewic.e Final Wilderness EIS, 1990

Description: One hundred-five sites (primarily lit.hie scatters) **have** been recorded covering a broad period of occupaeion. Ten :r;:ockshelters w/storage cists or storage'caches, 1 w/masonry room, 3 w/granaries associated with Artasazi or Fremont have bf:!en 4iscovered. Additional sites, include p·etroglYPh and pictograph panels associat d with shelter-sites and 1 burial site.

Location: Carcass Canyon WSA

Source: Utah BLM Statewide Final Wilderness EIS, **i990**

Description: One hundred thirty.:.four dcc\lltlertted sites represent virtually all known prehistoric cultures in southern UT (chaic, Fremont, **Anas a zi**, Southern Paiute). 8,000 years of prehistory are represented. The sites primarily represent temporary habitation, by hunter gatherers..

Location: Death Ridge WSA

Source: BLM Utah Statewide Wilderness EIS, 1990, and Hauck, F.R., CUltural Resource Evaluation of South-Central Utah. 1977-1978

Description: The area contains 41 recorded sites and based on surveys may

contain exceptionally high densities of sites.. Known sites include rockshelters, pit houses. lithi'c scatters, an d masonry structures. Pictograph panels are in Deer Creek Canyon and petroglyphs are found in Snake creek canyon.

List o= Historic and Scientific Objects *of Interest*

A study located and estimated 612 sites per 23,000 acres, 564 potentially eligible for nomination to the NRHP (southern border of WSA). Another inventory estimated 360 sites per 23,000 acres at the northern border of the WSA.

Location: Faria Hackberry WSA

Source: Utah BLM Statewide Final Wilderness EIS. 1990

Description: The Kayenta Pueblo culture inhabiting the Straight Cliff and portions of the Escalante River drainage between A.D. 1000 and 1200 were likely in contact with the Fremont culture. Although both inhabited the area at the same time and competed for limited agricutural lands there is no evidence of open conflict during this time. Some modifications of pottery making technique between the two cultures indieates that there was trade and exchange between them. Little is known positively about the Kayenta culture and additional research in this area could provide valuable insight on interactions between the two cultures.

Location: Straight Cliffs WSA

Source: Lister, Kaiparowits Plateau and Glen Canyon Prehistory: An interpretation based on ceramics. 1964.

Objects of Historic Interest

Cesc::: iption: Dance Hall Rock/Hole in the Rock Trail. While the Hole in the Rock Trail was under construction in 1879, Mormon Pioneers camped at Fortymile Spring and held meet ngs and dances in t.he shelter of Dance Hall Rock. Des'ignated historical site by DOI 1970

Location: Two miles west of the Glen Canyon NRA on the H,ole in the Rock Trait

Source: Utah Wilderness Coalitio_;:1. Wilde::: ness at the Edge, p. 1:82

Description: Hi'storic rout,e constructed in 1879 to provide access from Escalante to areas on the opposite side of the San Juan River in Sout east Utah.

Location: Historic trail running from Escalante to Hole in the Rock in Glen Canyon NRA

Source: t:.ambrechtse, Rudi. Hiking the Es'calante, 1985

Desc::: iption: Boulder Mail Trail. Used to carry mail between Escalante and Boulder begir.ning in 1902. Much of trail still visible where necessary to . const::: uct .::hrough slickrock. Nbminated to NRHP. Popular backpacking route.

Location: Phipps Death Hollow ISA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Boynton Road. Constructed 1909 as short cut bet:ween Escalante and 2 years because of flooding. Salt Gulc:h. Abandoned vlsible over approx after of its 10 miles: 9

Ldcation: Phipps Death Hollow ISA

Source: Utah BLM Statewide Fihal Wilderness EIS, 1990

Description: Escalante B.ou.lder telephone line: First eoulder Escalante telephone line constructed by Forest Service in 1911 providing first phone s rvice to area. Still visible between Ancone. Flat and Sand Creek.

Location: Phipps Death Holl ISA

ow

Source: Ut.ah BLM Statewide Final Wilderness Er's, 1990

DescriptiQj:i: Washington Phipps grave. A historical grave site ef an early pioneershot in 1878 in a dispute witp his partner John Boynton. Provided the namesake for the area.

Location: Phipps De th Hollow

Source: Lambret:htse, Rudi Hiking th,e Escalante, 1985

Description: Old Boulder Road. Main ro\jlte between Escalante and Boulder

until the CCC built Hell's Backbone Road and Highway 12 •s to replace it in 1938 -

Location: Phipps Death Hollow ISA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: The Hattie Green mine, an early copper working located on the crest of The Cockscomb.

Location: The Cockscomb WSA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Old Paria Town.site was established in 1874 on the bench above the eastern bank of the Paria River by Mormon settlers who attempt d to farm the bottomlands. Site was abandoned in 1890.

Location: adjacent to Paria-Hackberry WSA

Source: Abby,. Edward and Hyde, Philip. Slickrock p.46

Description: Old Paria. Townsite movie set. Built in the 1960's to film several movies. Now abandoned but still a popular recreation des tin ation.

Locatiom adjacent' to Paria-Hackberry WSA

Source: Abby, Edward and Hyde, Philip. Slickrock **p.46**

Objects of Biological Interest

Description: Riparian zones are corridors for many of the region's species, including neotropical migrant birds. Thecorridors (including theEscalante, and Paria Rivers and Johnson Creek and their tributaries) bisect the region north'to south. allowing forexchange of individuals among different animal populations.
The importance of movement corridors to the long term vi abi l i t y o f animal populations is of great scientific andmanagement interest. This area would afford inany 9pportunities to enhance this ecological issue.

Location: Entire monument proposal including the Escalante area, Kaiparowits Plateau. and areas west to Kanab including the Escalante, Paria rivers and Johnson Creek

sour ce: Edwards, Tom, 1996; Knopf, 1985; Armbruster and Lande 1993; Beier, 1993; Be l ov s ky , 1987; Brown, 1971; Da v i d s on et al. 1996; Diamond, 1981; Fahrig and' Merriam, 1985: Frankel and Soule, 1981; Harris:and Gallagher, 1989; Heaney, **1984;** IUCN, 1978; Kushlan, 1979; Lomolino and Channell, 1995; Meffe and Carroll, 1394; Newmark, 1995; ·Noss, 1993 ;. Patterson, 1984; Pickett and Thompson, 1978; Primack, 1993; Saund rs et al., 1991; Shaffer, 1981; Soule, 1987 ;. Soule and Wilcox, 1980f Wegner and Merriam, 1979; Wilcove et al., 1986; Willis, 1974.

Description: 25 miles of riparian corridor in unit; Connects mountains to.desert lowlands. Has gr ea t concentration of hanging gardens and riparian veg t ati on, includ.ing rel.ictual populations in canyon bottoms. Also supports manyr ock· crevice corranunities. Connects other protected areas. High plant endemism, due to large extent *of* parent material exposu e.

Location: Escalante River

son ce: BLM Wilderness EIS; Knopf, 1985; Shulz. 1993; Armbruster and Lande **1993;** Beier, 1993; Belovsky, 1987; Br own , 1971; Da v i ds on (e t al. 1 9.96; Diamond, 1981; Fahrig and Mer iam. 1985; Frankel and Soule. 1981; Harris and Ga ll a g h e r ; 1989: Heaney, 1'984; IUCN, 1978; Kushlan, 1 979; Lo mo l i n o and Channell, 1995; Meffe and Carroll 1994.; Newmark, 1995: Noss. 1993; Patterson, 1984; Pickett and Thomps on , 1978; .Primack:, 1993: Saunders et al., 1991; Shaffer. 1981; Soule, 1987; Soule and Wilcox, 19.8 0 ; Wegner anq Merriam, 1979 ; Wilcove et al .• 1986; Wi l l i s '. f974.

Ds c r i p t i on : Riparian corridor links high country to lowland desert scrub. Conne(::ts pr o t e,c t e d areas. Hashigh concentrations of isolated commun i t i e s ,: hanging gar de n , roc;k crevice and canyon bottom corranun i t i e s·. Also **has an** abundance of packr at midden·s·.

Location: Paria River

Source·: Van Devender and Spaulding, 1979: BLM Wilderness EIS; Knopf, 1985; Shulz, 1993: Armbruster and Lande 1993; B ier, · 1993; Belbvsky, 1987; Brown, 1971; Davidson et i' l. 1996; Di am.a n d , 1981; Fahrig and Merriam, 1985; Frankel. and 5oule, 1981; Harris and Gallagher, "1 9 8 9 ; He an e y , 1984; IUCN, 1978; Kushlan, 1979;· Ic.omolino and Channell, 1995·; Meffe and Carroll., 1994; Newmark, 1995; Noss, 1993; Patterson, 1984 : , Piekett· and Thompson, 1978; Primack, 1993; Saunders et al., · 1991; Shaffer, 1981; Soule, 1987; Soule and Wilcox, 1980; Wegner and Merriam, 1979; Wilcove et al., 1986; Willis, 1974.

Description: Fifty miles of perennial streams including the Paria River (wh£ch is a wild and scenic river inventory segment). Riparian vegetation cov·r 500 acres.

Location: Pa r i a Ha c kb er ry WSA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Three major floras meet in this area. Plants from the Mojave, Arizona deserts and northern Utah are all found here, with a few species from the Great Plains. The Colorado Plateau is surrounded by high mountains, isolating the flora and fauna. Unlike many ecosystems, the plant density, diversity and stature within the monument is determined more by substrate than climate; Consequently, isolation, plus the great diversity of substrates (providing a wide range of soil chemistry and physical characteristics) found within clo e proximity to each other has resulted in a high level of plant endeini.sm in this area. Eleven species found in the monument are found nowhere else in the world.

Of plants that occur only in Utah or on the Colorado Plateau, 125 species occur in the monument. The Canyonlands portion of the Colorado Plateau, much of which is contained in the monument, is considered the richest floristic region in the Intermountain West, and contains 50%. of Utah's rare and endemic plants. 901 of these rare and endemic species are found on substrates typical of most of the monument. Of the Canyonlands area, the monument area is :::onsid.ered one of the most significant for endemic populations, with more than 10\ of the flo a being found no nowhere else.

Of additional significance is that many of the plants in the monument a;e diploid species. This means they represent the basic genetic stock from which polyploid species in the area evolved. This makes this **area** of **great** significance to plant evolutionary biologists and provides a unique opportunity to study the evolution and speciation of plant species, as well as the structure and dynamics of plant communi ies. independent of climate.

Location: Encire monument

Source: Kaiparowii::s Power Project EIS; Axelrod, 1960; Utah Natu al Heritage Program plant database: Nabhen and Wilson, 1996; Shulz, 1993; Albee et al., 1988; Welsh, 1974; Welsh et al. 1975; Hintze, 1988; Dott, 1996; Shreve, 1942; Cronquist et al., 1977; Utah Natural Heritage Program plant database

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Description: The Colorado Plateau was uplifted and downcut without deformation. As a consequence, large areas of unmixed geologic parent materials are exposed, and plants muse adapt to large array of highly distinct parent materials. These substrates are sharply demarcated, and often occur within a few meters ot ach other. This s.;t uation offers the unique opportunity to examine the role of soil physical and hemical characteristic in determining plant and animal community structure independent of climatic variables, an i.mporta.11c ecological question. It also resulfs in different plant community structure and dynamics than is gen rally observed in other ecosystems. Thi area contains shales, siltstones, mud tones, sandstones and limestone f differing depths, and deposited in a variety of environments (marine, freshwat r and eolian) Each soir depth and depositional envfronment has very different chemical and physical characteristics. As a result, there is a great diversity of substrates in this

area, each supporting unique plartt community.

Location: Entire monument

Source: Hintze, **1988**; **Na.bhe- d Wilson**, **1996**; Gross. **1987**; Dott, **1996**; **Roberts**, **n** **1987**

Description: The presence o! steep elevational gradient gives the opport unity to sort out the role of temperature and precipitation in structuring plant and animal communities; E.leva ional gradients haye traditiona.lly been used by scientists as a way of examining fac:;tors controlling biotic comnunity structure.

Juxtaposition of diverse substrates and elevationa1 gradients give an unparalleled opportunity to determine the resped::ive roles of soil.

chemistry, physical characteristics, elevation . J,"ainfall and temperature in structuring biotic communities. In addition, it all:ows for 'high iodiversity in a small are a.

Lc::>cation: Entire monument

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Source: Kaiparowits Power Project EIS; Axelrod, 1960; Utah Natural Hericage Program plant database; Nabhen and Wilson, 1996; Shulz, 1993; Albee et al., 198; Welsh, 1974; Welsh et al. 1975; Hintze, 1988; Datt; 1996; Shreve, 1942: Cronquist et al.. 1977

Description: The Escalante Plateau is the home *tb* approximately 300 species of amphibians, birds, mamma.ls, and reptiles. This diverse set of wildlife species includes over 20 species of birds of prey including the bald eagle, peregrine falcon, and was the historical range of the condor. The region contains 2 of the 7 recognized centers of endemism for fishes of the western United States.

Location: Escalante Plateau

;ore; ;a ids n e.;l 1996; ;o;;d a;ds, 1996." s;bhk;, R J., and Zar, , 1976

Description: Contains many different geologic substrates (therefore soils with different phX,.sical and chemical attributes) in a small area. The maj ori,ty of endemic in Utah are found on these particular substrates; consequently, this area is expecced to have a high concentration of endemics.

Location: Escalante along boundary of Glen Canyon NRA and Ccpital Reef National Park

So rce: Utah patural Heritage Program planc database; Nabhen and Wilson, 1996; Shulz. 1993; Albee et al., 1988; Welsh, 1974; Welsh et al. 1975; Hintze, 1988

Description: L rge **expanses** of, **fine-textured soils (Morrison, Mancos/Tropic)** shales support large number of endemic plant **species**, fossil_s.

Locacion: Henrievill to-Escalante-

Source; Hintze, 1988: Shulz, 1993; BLM Wilderness EIS

Descripti n: An exposed monocline with many soils/substrates in close juxcaposition provides tremendous biodiversity of both general and endemic flora. High salt content of stream provides habitat fo salt tolerated riparian plants. P:covides a elevational gradienc from ponderdsa pine to deser_t sc;:rub. In addition. the ro.c)yy substrate has provided refugia for many Arcto Tertiary plants, providing a unique oppoz:tunity to examine the effects of ancient floral presence in the structuring of present day plant communities. This area also supp'orts a veq high diversity of both general and endemic flora.

Location: The Cock-comb

Source: Hintze, 1988; Shulz, 1.993; Albee et al, 88 Ax lrod, 1960; Welsh, 1978; Stevens, 1992; Dott, 1996

Description:Cont ins a concentration Qf JnanY diffe.rnc geologic substrates/soils with different physical and chemi'cal att;i: ibutes. 'rhis **area has a** high concentration of endemics. Th s boundary a'lso abuts protected **areas** (Glen C yon, Capitol Reef),. thereby effectively increasi:r;ig the value of all three **areas** for biological conservation. . In addition·,the Wate:rp.ocket Fold has _ isQ,lated two outcrops o.f the same parent material. These two **areas** now support different floras. 'l'his pres ents an outstandingsci entificopportunity to explore processes of speciation.

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Location: F

boundary- - - - - -

Source: Hintze, 1988; Shulz, 1993; Albee et al., 1988; Axelrod, 1960; Welsh, 1978; Stevens, 1992; D'ott. 1996; Armbruster d Lande, 1993; Fahrig and Merriam, 1985; Beier, 1993; Belovsky, 1987; .Brown, 1971; Davidson et al. 1'996; ,Diamond,

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1981; Frankel and Soule, 1981; Harris and Gallagher. 1989; Heaney, 1984; IUCN, 1978; Kushlan. 1979; Lomolino and Channell, 1995; Meffe and Carroll, 1994.; Newmark, 1995; Noss. 1993; Patterson, 1984; Pickett and Thompson, 1978; Primack, 1993; Saunders et al., 1991; Shaffer, 1981; Soule. 1987; Soule and Wilcox, 1980; Wegner and Merriam. 1979; Wilcove et al., 1986; Willis, 1974.

Description: This is an exposed monocline. Consequently, many substrates (Summerville, Morrison, Dakota, Tropic, Entrada, Navajo, Wingate and Carmel) are exposed directly next to each.other, providing an opportunity for studies of ecological processes independent of climate. This monocline a'lso has an elevational g adient, facilitating the study of ef fects of temperature and moisture on community dynamics. In. addition, the ro.cJcy subst; ate has provided refugia for many Arcto Tertiary plants, providing a unique opportunity to examine the effects of ancient flo al presence tn the structuring of present day plant corranui:iities .. This area also suppO'rts a very high diversity of both gener l; and endemic flora.

Location: Straight Clif area fs

Source: Hintze, 1988; Shulz, 1993; Albee et al., 1988; Axel od, 1960; **Welsh**, 1978.

Desc4,ption: Diversity of plant life ranging from low desert shrub to Ponderosa Pine (less theft lmile apart) enhances the study and obs ervation of ecology. 3
small stands of Po.nderosapine in Alvey Wash.

Location: Ridge WSA. Bea th

Source: Utah .BLM Statewide Final Wilderness.EIS, 1990

Description: Contained w.ithin the monument are 3-5 .spatially ;eparat,eq **areas** where the same substrates are exposed .in close proximity to each other. In addition, there are 5 elevational gradients along riparian corridors'.This is crttrcal-for·repr·icated scientificwork to be ,conducted._
Location: Entire monument

Source: Hintze, **1988;** USGS Topographical Maps

Description: Riparian corridor with elevational gradient, connecting des t low lands to the high country. Vermillion, Whi.te, Pink Cliffs (Triassic, Jurassic,' Cretaceous material);
Location: Johnson's Creek

Source: Hin'tze, **1988;** USGS Topographical. ps; .Beier, **1993; Noss, 1992. 1993**

Description: Fifty. Presence of aspen on **Pleasant** Grove, Steer Mile"Mountain. Canyon, and Pinto Mare Canyons.

Location: Fifty Mile Mountain WSA

Source: Utah BLM Statewid.eFinal Wilderness Ers. 1990

Description.: Protects lands at low eleva.tiori si.tes frequ tly rich in species diversity. The range' of elevation in these areas from approximately 4500 8300 feet encompasses a wide variation in elevation and will ca:pture the full

diversity of plant and animal species in the region.

Location: Entire monument proposal including the Escalante area, Kaiparowits Plateau, and areas west to Kanab

Source: Hintze, 1988; Utah BLM Final Wilderness EIS, 1990

Description: The monwnent contains an abundance of hanging gardens, tinajas, canyon bottom, dunal pockets, salt pocket and rock crevice communities. These small, isolated populations often contain unusual, often relictual plants and animals. Hanging gardens and canyon bottom communities harbor riparian pl ts and their pollinators, as well as unique vertebrates (bats d small mammals) and soil fauna. Tinajas are import.apt aquatic resources, and contain a diver!je prray of tadpole, fairy and clam shrimp, amphibians, algae, water beetles, other crustaceans, snails, mosquito and gnat lar:vae and aquatic/riparianplants. Highly saline areas are found. around many seeps arid streams, and consist of plants and animals adapted to highly saline conditions. Dun,;il pockets contain species adapted to shifting sands, while rock crevic:e communities consis•tmostly of slow growing species that can thrive in extremely infertile sites. These, communities offer a chance to examine gene flow dynamics, and to distip,guish the respective role of pollen versus seeds. They offer aµ opportunity to study ground water flow dynamics in the absence of s.ignificant fluvial processes, anc island biogeography of plants, pollinators and ground dwelling biota. They also are highly simplif ed, discrete ecosystem$, making them ideal for elucidatin basic ecosystem processes.

Location: Entire monument

Source: Nabhen and Wilson, 1996; Harper et al., 1994; Welsh et al., 1993; May et al., 1995: Fowler et al., 1995; Graff, 1988

Description: These canyons provide a high concentrati on of isolated, unique plant and invertebrate communities: hanging garden, rock crevice, and canyon bottom communities. Many relictual plant species can be found in these communities.
Padc rat middens are undant, providing paleocl imate and paleo vege;ation information.

Loc ation: Escalante Canyons

Source: Axelrod, 1960; BLM Wilderness EIS: Van Devender and Spauling, 1979: Fowler et al., 1995; Nabhen and Wilson, 1996

Description: Dunal pockets contribute Great Plains species to the flora. These are unique, isolated plant communities.

Location: Cockscomb to Kaipar6wits

Source: Hintze, 1988

Description: Unique, isolated communities are located throughout the **monument.** These include hanging gardens, tiriajas, canyon bottom, dunal pocket, **salt** p cket and rock crevice communities. They provide great opportunities for examinitlg evolution, gene flow, island biogeography and, other ecological. principles.
Location: Entire monument

Source: Case and Cody: 1988; Diamond, 1981; Dott, 1996; Harris, **1984**; Ludwig and Whitford, 1981; Fowler et al., 1995; Nabhen and Wils'on, 1996; Rol:>erts, 19871 R ice. 1994; Axelrod, 1960

Description: Biological conservation theoirY and literature suggests that **large**

cdntiguous conservation areas increase both extent and probability of popu,lation survival, increases protection of mi_gratory pathways, and is the **means of conserving aquatic and riparian**

commu.nities.
Location: Entire monument

Source: Soule, 1987; Davidson et al., 1996; Miller, 1961; Minckley and Deacon, 1968; Armbruster and Lande, 1993; Fahrig and Merriam, 1985; Beier, 1993; Belovslcy, 1987; Brown, 1971; Davidson et al. 1996; Diamond, 1981; Frankel and Soule, 1981; Harris and Gallagher, 1989; Heaney, 1984; IijCN, 1978; Kushlan, 1979; Lomolino and Channell, 1995; Meffe and Carroll, 1994; Newmark, 1995; Noss, 1993; Patterson, 1984; Pickett and Thompson, 1978; ·Primack, 1993; Saunders et al., 1991; Shaffer,, 1981; Soule, 1987; Soule and Wilcox, 1980; ·wegner and Merriam', 1979; Wilcove et al., 1986; Willis, 1974.

Description.: The connection with Glen Canyon provides a larger protected **area.** It also provides low desert vegetation as part *ol* the vegetational gradients. Large areas are important for maintaining the evolutionary potential of plants and animals, allowing for the exchange of genetic ma.cerial a..aong the **separate**

populations that constitute population.

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Location: Common boundaries and riparian connections with Glen Canyon NRA, Capitol Reef NP, Box Hollow Wild rness and Paria. Wil erness

Source: Hintze, 1988; Shulz, 1993; Albee et al.., 1988; Axelrod, 1960; Welsh, 1978; Stevens, 1992; Datt, 1996; Armbruster and Lande, 1993; Fahrig and Merriam, 1985; Beier. 1993; Belovsky, 1987; Brown, 1971; Davidson et al. 1996; Diamond, 1981; Frankel and Soule, 1981; Harris anq Gallagher, J989; Heaney, 1984;, IUCN, 1978; Kushlan, 1979; Lomolinp and Channell, 1995; Meffe and Carroll, 1994; · Newmark, 1995; Noss, 1993; Patterson, · 19 4; Pickett and Thompson, 1978; Primack, 1991; Saunders et al.., 1991; Shaffer, 1981; Soule, 1987; .So ule and Wilcox, . l,980 ; Wegner and Merriam, 1979; Wilcove et al., 1986; Willis, UJ'74.

Description: Cryptobiotic soil crusts are critical for soil s'tability, nutrient availability for vascular plants and normal soi1 surface teniperatures. ·These crusts are extremely fragile and easily disrupted by soil surface disturbances such as trampling or o"ff road vehicles. Since the soils in the monument are highly susceptible o erosion, it is important that **these** bioc ts be PX:Otect so they stabilize these erodiblesoil surf,aces. In addition." these_ eco tems have few nitrogen fixing plants. Since these crusts provide nitrogen to these

soils, they·are a critical part of these nit::::ogen-limited·ecosystems.

Entire-monument

Locatio

n:

Source: Belnap, 1994, 1995; Belnap and Harper, 1995; Belnap et **al.** , 1994; Jefferies. 1989 ; Harper and Marble, 1988; Johansen, 1993; M4ck and Thompson , 1978; Fleischner, 1994

Description: Disturbance of most soil surfaces in the monument area will: result in soil surface temperature changes, as bio crusted surfaces are darker than t:he substrates underneath them. The expected lowering of temperature wi disturbance would re.sul t in cooler soil tE!DIPeratures, **thu** and later **spring** plant germination and lower nutrient uptake rates. Thi**s**, s may adversely effect desert plant growthl,in early spring. Surface temperat\lre& also influence. foraging and burrowing patterns for **many** soil invertebrates, and·many effect communi y · dynamics of these species..

Location: Entire monument

Source: Ludwig clnd Whitford 1981; Belnap 1995

Description: Ecosystems in this area are some of the most **stable** documented to date, as both large and small scale disturbances are limited atially and temporally. Very little of this area was glaciated in the Pleistocene. Most plant communities evolved without fire or grazing by large ungulate herds, as evidenced by characteristics of the soils and the flora. Catastrophic events are minimal, with the exception of wash bottoms. Microsite disturbances are minimal as well as most soils support very low populations of invertebrates.

1880

photos repeated in 1990 show many sites virtually unchanged, with the same tree, shrub and grass individuals present, indicating very low species turnover rates -- in this region relative to other ecosystems. In addition, dead tree branches can still be found in virtually the same condition as they. were 100 years ago, indicating plant tissue decomposition rates are extremely low in this region. This makes this area highly unique, as most ecosystems are believed to be structured disturbance. In this region, ecological processes can be studied independent of the effects of disturbance to give us greater insight into their functioning (i.e. factors controlling exotic plant invasions, species-species interactions, etc.)

Soil physical, chemical and biological features appear to be both easily damaged (low resistance) by surface disturbance and have very slow recovery rates (low resilience) when compared to other deserts or more mesic systems. This may be a result of evolution of this ecosystem evolving in the relative absence of disturbance (Belnap 1995; 1996). Therefore, this area is important in the study of how disturbance influences community dynamics, including species-species interactions, and for understanding how to restore these fragile systems. This also means that this area is highly susceptible to damage by different land uses, including recreation and grazing.

Location: Entire monument

Source: Belnap, 1995, 1996; Belnap et al., 1994; Mack and Thompson, 1982; Fleischner, 1994; Kleine, and Harper 1972; Harper et al., 1994; Webb, 1994; Rogers, 1982; Pickett and White, 1985; Moldenke, 1995; Evans and Ehleringer, 1993; Turner et al. 1993; Iverson et al. 1981; Webb and Wilshire 1981; Larsen 1996; Bowers et al. 1994

Description: Isolation of this area has resulted in minimal human impacts. Many of the ecosystems found in this area have received little, if any, human use and the type and extent of disturbance has that has occurred is known. In addition, there are large areas unbroken by roads. This is essential to the protection and conservation of plant and animal species.

Location: Entire monument

Source: Wilcox et al 1986; wilcox and Murphy 1985; Mader et al., 1990; Osley, et al., 1974; Rost and Bailey, , 1979; Witmer and Calesta, 1985

Description: The monument lacks any areas that have been invaded to any large extent by exotic species. There are few such areas in the Intermountain West, and they can provide invaluable information in understanding the ecology and dynamics of exotic plant invasion. These areas aid scientists in understanding what makes systems resistant to such invasions, and thus help land managers predict what areas are susceptible to invasion and restore already-invaded regions.

Location, Entire monument

Source: Billings, 1994; fleischner, 1994; Forcella and Harvey; 1983; Gross, 1987; Hunter, 1990; Loope et al.., 1988; MacMahon, 1987; Pelant, and Hall, 1994

Description: Six threatened or endangered candidate species all are located within or near its area.

Location: **Wahweap WSA**

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Contains Peregrine falcon (endangered) and 6 special status animal

species and 5 special status plant species.
Location: Mud Spring WSA

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Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Habitat for Swainson's hawk, golden eagle (Sensitive) and peregrine falcon (endangered).

Location: The Blues WSA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Peregrine falcon and bald eagle (endangered). **8 animal and 5** plant species of special status.

Location: Paria-Hackherry and Cockscomb WSA and **Wahweap WSA**

Source: Utan BLM Statewide **Final** Wilderness EIS. 1990

Description: Thirteen species of raptors are known or suspected of nesting in the WSA

Location: Burning Hills WSA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Relict plant community in the upper part of Dry **Valley probably** posiesses important scientific values.

Location: Mud Spring Canyon WSA

Source: Utah BLM Statewide Final Wilderness EIS, 1990

Description: Unique relict plant community on pinyon vegetation accessible only by a steep trail. and sagebrush-grass One or the few remaining unaltered plant communities in Utah. No Man's Mesa **RNA was** designated **as an** ACEC in 1986. Such areas are invaluable science. They deserve protection and management goals to administration of lands. such areas also critical to scientists who are trying to understand the natural functioning of ecosystems. Grasslands are especially valuable, as almost all have been heavily **grazed** for **over a century.**

Location: Paria-Hackberry WS (No Man's Mesa and Little No **Man's Mesa)**

Source: Utah BLM Statewide **Final** Wilderness EIS, 1990 **and** Barp, 1972

Description: Four Mile Bench Old Tree Area. Unique area of extremely old (1,400 years) pinyon and juniper trees. Unique scientific values on over 1,000 acres.

Location: Wahweap WSA

Source: Utah BLM Statewide **final** Wilderness EIS, 1990

Description: This region iii at the northern end of areas that receiv summer monsoonal r a i ns ; and is at the,,l iouthern end of. areas that . ends onw ter rains. Th.is di st in ct i on is :very importan t . t g. the physiological. functioning of plants in this mo i s t ure- l imi ted areas, as even minor' changes in temperature and/orr a i nf a l l may lead to major di f fer ences- irr watE!r availabil'ity,· and · consequently, pl t metabolic proc s es : . ' Climate change. is expected to alter bot:h rainfall timing and amount, as we l L a temperat e. This, in turn, would alter plant physiology, water se patterns and community compos tion in this

Lise ol Historic and Scientilic QbJeccs · o! , Page 21
Interest

region, making the monument an excellent place for studying global climate change.

Location: Ent ir e monument

Sources: Ayyad 1981; Graff 1988; Van Oevender and Spaul di ng 1979; Wagner 1981

Description Unlike most deserts that are primarily depositional environments, the CP is an erosional one (Welsh 1979; Nat Hist). This contribu es to high endemism, as substrate material is not mixed. In addition, it makes this region hi ghl y susceptible to soil loss when s ur f a c e s are disturbed. This oil loss bas a negative impact on plant and aquatic communities, a,s well as dam sediment - loads.

Location: Entire monument

Source: Welsh, 1979; Harper et al., 1994

Description: The effect of ssaling up and down are nqt known for many . ecological processes. The multitude of variably sized, discrete watersheds found in this area offer a unique opportunity to te=,i"t - the effects of scaling f or : llydrological and biological proc s e s . In addition, the close spacing of these watersheds offers a chance to separ at.e the effects of **area** per se from other environmental factors on comnnmity structure.

Location: Entire monument

Source: Allen and Hoekstra 1987; Reice 1.994; Pickett and Whi t e : 1 985 ; RQsenweig 1985

Descriptj,on:, Semi-arid and arid lands of the western United States are highly susc ptible to desertification, The lack of natura1 disturbance in much of th i s **a;rea** offers the opportunity to s t u dy the effects o f different es and levels of

l a n d use and to bett understand the s t e ps leading to desertification.

Loc a t i o n : Entire monument

Source: Dregne, 1983

Description: This area contains few exotic plants. Having this r:esource gives t he opportunity to better understand what factors 'inhibit or fflc i l i t a t e ex o t i c plant invasions. Roads have been -heavily impl i ca t ed iri fapilitating exotic plant i nv.as i on :, while intact C:ryptobiotic soil crusts and l ss fa{rorable soil chemistry , may inhibi):::: such an invasion: Invasion coul.d fundamentally -al ter these

conmunities, by altering spec s composition, . commun ty, ami cs an d fire cycles

t.ocation: Entire mon um.en t

Source: .Mons e n and Ki t c hen , 1994; Kel:ly 199 6; ltarper and Mar le 19,88 ; Davidson et al. 1996

O:escriptio n: Quaternary resources are abundant in the monum Emt. Pack rat middens enabler econstruct i on paleoclimates and pal eo-veget at i .. while Pleistocene animal remains found in alcoves. . f .

Location: Entire monument Source.:. .

Harper et al . 1994

Description:, Unlike more mesic ecosystems, there is l i t t l e evi dence that desert communities-demonstrate traditional successional sequen1:es. There is little or

no modification of soils or other site characteristics by previous occurring plants. Understanding of this is important for restoration efforts. The. monument offers an excellent opportunity to study this phenomenon independent of climate and disturbance factors.

Locatio : Entire monument
So"Urce: Barbour, 1981: Mac:Mahon, 1987; Shreve, 1942; Dott, 1996

Description: Peregrine falcon and Bald Eagle use these areas. Areas are habitat for 7 plant and 9 animal species considered sensitive.

Location: Death Ridge and Fifty Mile MountaL. WSAs

Source: Utah Statewide Wilderness Study Report,

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Description: Peregrin.efalcon and Bald Eagle use these areas. Areas are habitat fo 8" plant and 7· ima.l speci es considered -r- sensitive.

Locatio Phipps Death Hollow ISA and Steep <; r eek WSA n:

Source: Utah St tewide WUderness Study Report. l.991

Description: Pe.regrine falcon and Bald Eagle. use these areas. Areas are habitat for 9 plant. and 7 animal species considered sensi.ti.ve..

Location: North Escalante Canyon, :nie Gulch and C ar cass Canyon WSAs
Source: Utah Statewide Wilderness Study Report, l.99L